

IN THE CLAIMS

Claim 1 (Currently Amended): A composite oxide, comprising: agglomerated particles, each agglomerated particle comprising a plurality of fine particles, the agglomerated particles having an average particle diameter of 20  $\mu$ m or less and the fine particles having an average diameter of 50 nm or less, wherein the plurality of fine particles comprises oxides of a plurality of metallic elements, and each fine particle independently comprises an oxide of one or more of said metallic elements, said agglomerated particles having a surface and an inner portion ~~whose metallic element distributions differ with each other~~, and wherein fine particles each having an oxide of the same metallic element or elements have a distribution in the surface portion that differs from the distribution in the inner portion.

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cls 50  
50nm = 50 x 10<sup>-9</sup>  
= 0.05  $\mu$ m

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Claim 2 (Original): The composite oxide according to claim 1, wherein the plurality of metallic elements are Al and at least one element selected from the group consisting of Ce and Zr.

Claim 3 (Previously Presented): The composite oxide according to claim 2, wherein Ce is present as CeO<sub>2</sub> and Zr is present as ZrO<sub>2</sub>, and at least a part of CeO<sub>2</sub> and ZrO<sub>2</sub> form a solid solution.

Claim 4 (Original): The composite oxide according to claim 1, wherein the plurality of metallic elements are Al, Zr and Ti.

Claim 5. (Previously Presented): The composite oxide according to claim 4, wherein Zr is present as ZrO<sub>2</sub> and Ti is present as TiO<sub>2</sub>, and at least a part of ZrO<sub>2</sub> and TiO<sub>2</sub> form a solid solution.

Claim 6 (Original): The composite oxide according to claim 2, wherein said agglomerated particles further comprise a rare-earth element oxide, and the rare-earth element oxide is solved in  $\text{Al}_2\text{O}_3$  in an amount of 70 mol % or more.

Claim 7 (Original): The composite oxide according to claim 4, wherein said agglomerated particles further comprise a rare-earth element oxide, and the rare-earth element oxide is solved in  $\text{Al}_2\text{O}_3$  in an amount of 70 mol % or more.

Claim 8 (Original): The composite oxide according to claim 1, wherein the plurality of metallic elements are at least two elements selected from the group consisting of Al, Ce, Zr, Y, Si, Ti, Mg and Pr.

31  
Claim 9 (Previously Presented): The composite oxide according to claim 8, wherein Y is present as  $\text{Y}_2\text{O}_3$ , Ce is present as  $\text{CeO}_2$ , and Zr is present as  $\text{ZrO}_2$ , and a solving ratio of  $\text{Y}_2\text{O}_3$  in  $\text{CeO}_2$  is 10 mol% or less, and a solving ratio of  $\text{Y}_2\text{O}_3$  in  $\text{ZrO}_2$  is 90 mol% or more.

Claim 10 (Previously Presented): The composite oxide according to claim 8, wherein Al is present as  $\text{Al}_2\text{O}_3$ , and said agglomerated particles further comprise a rare earth element oxide, excepting  $\text{Y}_2\text{O}_3$ , and the rare earth element oxide is solved in  $\text{Al}_2\text{O}_3$  in an amount of 70 mol% or more.

Claim 11 (Original): The composite oxide according to claim 6, wherein the rare-earth element oxide is  $\text{La}_2\text{O}_3$ .

Claim 12 (Original): The composite oxide according to claim 10, wherein the rare-earth element oxide is  $\text{La}_2\text{O}_3$ .

Claim 13 (Currently Amended): A composite oxide, comprising:  
agglomerated particles having an average particle diameter of 20  $\mu\text{m}$  or less, in which first oxide-phase fine particles having an average diameter of 50 nm or less, and second oxide-phase fine particles being different from the first oxide-phase fine particles and having an average particle diameter of 50 nm or less, are agglomerated,

112/254

said first oxide-phase forming a crystal having an aspect ratio of 30 or less and being highly dispersed with each other and with said second-phase fine particles to constitute said agglomerated particles, said agglomerated particles having a surface and an inner portion ~~whose metallic element distributions differ with each other, and wherein fine particles each~~ having an oxide of the same metallic element or elements have a distribution in the surface portion that differs from the distribution in the inner portion. 112/2<sup>nd</sup>

Claim 14 (Original): The composite oxide according to claim 13 further comprising third oxide-phase fine particles being different from the first oxide-phase particles and the second oxide-phase fine particles.

301  
Claim 15 (Currently Amended): A composite oxide, comprising: 112/2<sup>nd</sup>  
agglomerated particles having an average particle diameter of 20  $\mu$ m or less, in which first oxide phase fine particles having an average diameter of 100 nm or less, and second oxide phase fine particles being different from the first oxide phase fine particles and having an average particle diameter of 30 nm or less, are agglomerated,

said first oxide phase fine particles having pores between the fine particles, in the pores which a major part of said second oxide phase fine particles are dispersed, the pores having a median pore diameter of from 5 to 20 nm, 50% or more of all the pores falling in a range of  $\pm 2$  nm of the median diameter, said agglomerated particles having a surface and an inner portion ~~whose metallic element distributions differ with each other, and wherein fine~~ particles each having an oxide of the same metallic element or elements have a distribution in the surface portion that differs from the distribution in the inner portion. 112/2<sup>nd</sup>

Claim 16 (Original): The composite oxide according to claim 15 further comprising third oxide-phase fine particles being different from the first oxide-phase fine particles and the second oxide-phase fine particles, a major portion of the third oxide-phase fine particles being dispersed in the pores.

Claim 17 (Original): The composite oxide according to claim 13, wherein metallic elements, constituting the first oxide phase, the second oxide phase and the third oxide phase are at least two metallic elements selected from the group consisting of Al, Ce, Zr, Ti, Mg, La, Pr and Si.

Claim 18 (Original): The composite oxide according to claim 15, wherein metallic elements, constituting the first oxide phase, the second oxide phase and the third oxide phase are at least two metallic elements selected from the group consisting of Al, Ce, Zr, Ti, Mg, La, Pr and Si.

Claim 19 (Original): The composite oxide according to claim 13, wherein the respective oxides have crystalline diameters of 10 nm or less after calcining them in air at 700 °C for 5 hours.

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Claim 20 (Original): The composite oxide according to claim 15, wherein the respective oxides have crystalline diameters of 10 nm or less after calcining them in air at 700 °C for 5 hours.

Claim 21 (Original): The composite oxide according to claim 16, wherein the respective oxides have crystalline diameters of 10 nm or less after calcining them in air at 700 °C for 5 hours.

Claim 22 (Previously Presented): A catalyst for purifying an exhaust gas, comprising: a catalytic ingredient being loaded on the composite oxide set forth in claim 1.

Claim 23 (Previously Presented): A catalyst for purifying an exhaust gas, comprising: a catalytic ingredient being loaded on the composite oxide set forth in claim 13.

Claim 24 (Previously Presented): A catalyst for purifying an exhaust gas, comprising: a catalytic ingredient being loaded on the composite oxide set forth in claim 15.

Claim 25 (Previously Presented): A catalyst for purifying an exhaust gas, comprising: a catalytic ingredient being loaded on the composite oxide set forth in claim 16.

Claim 26 (Currently Amended): A catalyst for purifying an exhaust gas, comprising:  
a support substrate;  
a first catalytic layer being formed on a surface of the support substrate, and  
comprising a first support including the first oxide phase set forth in claim 13, and a catalytic  
ingredient being loaded on the first support; and

a second catalytic layer being formed on a surface of the first catalytic layer, and  
comprising a second support including the second oxide phase set forth in claim 13, and a  
catalytic ingredient being loaded on the second support;

at least one of the first support and the second support including agglomerated  
particles, each agglomerated particle comprising a plurality of fine particles dispersed therein,  
the agglomerated particles having an average particle diameter of 20  $\mu$ m or less, and the fine  
particles having an average particle diameter of 50 nm or less, wherein the plurality of fine  
particles comprises oxides of a plurality of metallic elements, and each fine particle  
independently comprises an oxide of one or more of said metallic elements, said  
agglomerated particles having a surface and an inner portion ~~whose metallic element~~  
~~distributions differ with each other~~, and wherein fine particles each having an oxide of the  
same metallic element or elements have a distribution in the surface portion that differs from  
the distribution in the inner portion.

Claim 27 (Currently Amended): A catalyst for purifying an exhaust gas, comprising:  
a support substrate;  
a first catalytic layer being formed on a surface of the support substrate, and  
comprising a first support including the first oxide phase set forth in claim 15, and a catalytic  
ingredient being loaded on the first support; and

a second catalytic layer being formed on a surface of the first catalytic layer, and comprising a second support including the second oxide phase set forth in claim 15, and a catalytic ingredient being loaded on the second support;

at least one of the first support and the second support including agglomerated particles, each agglomerated particle comprising a plurality of fine particles dispersed therein, the agglomerated particles having an average particle diameter of 20  $\mu$ m or less <sup>11/2/2001</sup> and the fine particles having an average particle diameter of 50 nm or less, <sup>11/2/2001</sup> wherein the plurality of fine particles comprises oxides of a plurality of metallic elements, and each fine particle independently comprises an oxide of one or more of said metallic elements, said agglomerated particles having a surface and an inner portion ~~whose metallic element distributions differ with each other, and wherein fine particles each having an oxide of the same metallic element or elements have a distribution in the surface portion that differs from the distribution in the inner portion.~~ <sup>11/2/2001</sup>

Claim 28 (Original): The catalyst according to claim 26, wherein the plurality of metallic elements are at least two elements selected from the group consisting of Al, Ce, Zr, Ti, Mg, La and Si.

Claim 29 (Original): The catalyst for purifying an exhaust gas according to claim 28, wherein said agglomerated particles are included in the first support.

Claim 30 (Original): The catalyst for purifying an exhaust gas according to claim 28, wherein a CeO<sub>2</sub>-ZrO<sub>2</sub> solid solution is included in the inner portion of said agglomerated particles.

Claim 31 (Original): The catalyst for purifying an exhaust gas according to claim 28, wherein Al<sub>2</sub>O<sub>3</sub>, being stabilized by La<sub>2</sub>O<sub>3</sub>, is included in the surface of said agglomerated particles.

Claim 32 (Original): The catalyst for purifying an exhaust gas according to claim 28, wherein hollow  $\text{Al}_2\text{O}_3$  is included in the second support.

Claim 33 (Currently Amended): A catalyst for purifying an exhaust gas, comprising:  
a support substrate;

a support layer being formed on a surface of said support substrate, and including agglomerated particles, each agglomerated particle comprising a plurality of fine particles dispersed therein, the agglomerated particles having an average particle diameter of 20  $\mu\text{m}$  or

less, and the fine particles having an average particle diameter of 50 nm or less, and zeolite particles, wherein the plurality of fine particles comprises oxides of a plurality of metallic elements, and each fine particle independently comprises an oxide of one or more of said metallic elements, said agglomerated particles having a surface and an inner portion ~~whose~~

~~metallic element distributions differ with each other, and wherein fine particles each having an oxide of the same metallic element or elements have a distribution in the surface portion that differs from the distribution in the inner portion;~~ and

a catalytic ingredient loaded on said support layer.

Claim 34 (Previously Presented): The catalyst for purifying an exhaust gas according to claim 33, wherein said support layer being formed as a two layered construction includes at least a lower layer, and an upper layer being formed on a surface of the lower layer, the lower layer comprising the zeolite particles, and the upper layer comprising the agglomerated particles.

Claim 35 (Previously Presented): The catalyst for purifying an exhaust gas according to claim 33, wherein the agglomerated particles comprise a first metallic oxide of at least one element selected from the group consisting of Al, Si and Ti, and a second metallic oxide of at least one element selected from the group consisting of Ce and Pr.

Claim 36 (Previously Presented): The catalyst for purifying an exhaust gas according to claim 35, wherein said agglomerated particles further comprise a third metallic oxide of at least one element selected from the group consisting of La, Nd, Mg and Ca.

Claim 37 (Original): The catalyst for purifying an exhaust gas according to claim 33, wherein said catalytic ingredient is loaded on said agglomerated particles.

Claim 38 (Original): The catalyst for purifying an exhaust gas according to claim 33, wherein said agglomerated particles have crystalline diameters of 10 nm or less after calcining them in air at 700 °C for 5 hours.

Claim 39 (Withdrawn): A process for producing a composite oxide, comprising the steps of:

preparing a plurality of aqueous solutions of metallic acid salts;  
adding the plurality of aqueous solutions successively to an alkaline aqueous solution, which can neutralize the total amount of the metallic acid salts, thereby generating precipitates; and  
calcining the precipitates.

Claim 40 (Withdrawn): The process for producing a composite oxide according to claim 39, wherein the precipitates, which are generated successively, are subjected to an aging treatment while putting them in a suspension state in which water or a solution containing water serves as a dispersion medium, or in a system in which water is present sufficiently.

Claim 41 (Withdrawn): A process for producing a composite oxide, comprising the steps of:

preparing a plurality of aqueous solutions of metallic acid salts;  
mixing the respective aqueous solutions of the metallic acid salts with an alkaline solution, thereby forming precipitates respectively;



mixing the respective precipitates, thereby preparing a precipitates mixture; and  
calcining the precipitates mixture.

Claim 42 (Withdrawn): The process for producing a composite oxide according to claim 41, wherein at least one of the respective formed precipitates is subjected to an aging treatment while putting it in a suspension state in which water or a solution containing water serves as a dispersion medium, or in a system in which water is present sufficiently, and a precipitates mixture, in which the precipitates are mixed, is calcined.

Claim 43 (Withdrawn): A process for producing a composite oxide, comprising the steps of:

preparing a plurality of aqueous solutions of metallic acid salts;

mixing at least one of the aqueous solutions of the metallic acid salts with an alkaline solution, thereby forming precipitates;

subjecting at least one of the precipitates to an aging treatment while putting it in a suspension state in which water or a solution containing water serves as a dispersion medium, or in a system in which water is present sufficiently;

adding the rest of the aqueous solutions of the metallic acid salts to the formed precipitates thereafter, thereby further forming precipitates; and

calcining the resulting precipitates subsequently.

Claim 44 (Withdrawn): The process for producing a composite oxide according to claim 43, before said calcining step, further comprising the step of: subjecting the resulting precipitates to an aging treatment while putting them in a suspension state in which water or a solution containing water serves as a dispersion medium, or in a system in which water is present sufficiently.

Claim 45 (Withdrawn): A process for producing a catalyst for purifying an exhaust gas, wherein a catalytic ingredient is included in at least one of the aqueous solutions of the metallic acid salts set forth in claims 39.

Claim 46 (Withdrawn): A process for producing a catalyst for purifying an exhaust gas, wherein a catalytic ingredient is included in at least one of the aqueous solutions of the metallic acid salts set forth in claims 41.

Claim 47 (Withdrawn): A process for producing a catalyst for purifying an exhaust gas, wherein a catalytic ingredient is included in at least one of the aqueous solutions of the metallic acid salts set forth in claims 43.

Claim 48 (Previously Presented): The composite oxide according to claim 1, wherein the fine particles have an average diameter of 5 nm or more.

Claim 49 (Previously Presented): The composite oxide according to claim 1, wherein the agglomerated particles have an average particle diameter of 1  $\mu\text{m}$  or more.

Claim 50 (Previously Presented): The composite oxide according to claim 48, wherein the agglomerated particles have an average particle diameter of 1  $\mu\text{m}$  or more.

Claim 51 (Previously Presented): The composite oxide according to claim 13, wherein the fine particles have an average diameter of 5 nm or more.

Claim 52 (Previously Presented): The catalyst according to claim 26, wherein the fine particles have an average diameter of 5 nm or more.

Claim 53 (Previously Presented): The catalyst according to claim 26, wherein the agglomerated particles have an average particle diameter of 1  $\mu\text{m}$  or more.

Claim 54 (Previously Presented): The catalyst according to claim 52, wherein the agglomerated particles have an average particle diameter of 1  $\mu\text{m}$  or more.

Claim 55 (Previously Presented): The catalyst according to claim 33, wherein the fine particles have an average diameter of 5 nm or more.


261  
Claim 56 (Previously Presented): The catalyst according to claim 33, wherein the agglomerated particles have an average particle diameter of 1  $\mu$ m or more. 112/2nd el 33

Claim 57 (Previously Presented): The catalyst according to claim 55, wherein the agglomerated particles have an average particle diameter of 1  $\mu$ m or more. 112/2nd el 33

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DISCUSSION OF THE AMENDMENT

Claims 1, 13, 15, 26, 27 and 33 have each been amended by replacing "whose metallic element distributions differ with each other" with --fine particles each having an oxide of the same metallic element or elements have a distribution in the surface portion that differs from the distribution in the inner portion--, which is intended to be equivalent in scope, ~~as supported in, for example,~~ in Example 1, described in the specification beginning in paragraph [0162], and as shown in Fig. 1.



The added term --fine particles having oxides of the same metallic element or elements in common-- refers, in reference to Fig.1, to all of particles 10, to all of particles 12, and to all of particles 13, respectively, i.e., the particles 10 have a distribution in the surface portion that differs from the distribution in the inner portion, the particles 12 have a distribution in the surface portion that differs from the distribution in the inner portion, and the particles 13 have a distribution in the surface portion that differs from the distribution in the inner portion.

No new matter has been added by the above amendment. With entry thereof, Claims 1-38 and 48-57 will remain active in the application. Claims 39-47 stand withdrawn from consideration.